

**International Lake Superior  
Board of Control**

**Semi-Annual Progress Report to the  
International Joint Commission**

**Covering the Period March 8, 2001 to September 20, 2001**

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## Table of Contents

Section	Page
1. Highlights	4
2. Monitoring of Hydrologic Conditions	5
3. Regulation of the Outflow from Lake Superior	6
4. Governing Conditions During the Reporting Period	6
5. Repairs, Inspection and Flow Calibration at the Compensating Works	6
6. Repairs, Maintenance and Flow Determination at the Hydropower Facilities	7
7. Water Usage in the St. Marys River	8
8. Long Lac and Ogoki Diversions	8
9. Vidal Shoals Dredging	9
10. Annual Meeting with the Public and Public Information	9
11. Plan of Study for Review of Regulation Criteria	10
12. Board Membership and Meetings	10

Figure 1: Lake Superior and Lakes Michigan-Huron Monthly Levels

Figure 2: Lake Superior and Lakes Michigan-Huron Basin Monthly Precipitation

Figure 3: Lake Superior and Lakes Michigan-Huron Net Basin Supplies

Table 1: 2000-2001 Lake Superior Hydrologic Factors

Table 2: 2000-2001 Lakes Michigan-Huron Hydrologic Factors

Table 3: Monthly Distribution of Lake Superior Outflow (metric units)

Table 4: Monthly Distribution of Lake Superior Outflow (customary units)

Front Cover: Clockwise from the upper left:

Port Severn area marina and hotel

Public Meeting in Port Severn, June 27, 2001

Port Severn area wetland

IJC and Board members and staff at Honey Harbour, Ontario

# International Lake Superior Board of Control

## United States

BG Steven R Hawkins, Member  
John W. Kangas, Secretary

## Canada

Doug Cuthbert, Member  
Peter Yee, Secretary

September 20, 2001

International Joint Commission  
Washington, D.C.  
Ottawa, Ontario

Commissioners:

This semi-annual report covers the Board's activities from March 8 to September 20, 2001.

## **1. Highlights**

Water levels of the upper Great Lakes remained below average during the past six months as a result of the continued generally dry conditions on the basins. While the water supply to Lake Superior in April was a record high, it was far from sufficient to raise the lake to near average, and subsequent supplies were below average. The Lakes Michigan-Huron basin was drier than average keeping the levels on these lakes well below average and lower than one year ago. Similar to one year ago, water levels on Lakes Superior and Michigan-Huron were below chart datum for about the first five months of the year.

The Lake Superior outflows were essentially as specified by Regulation Plan 1977-A during the past six months. During the period June-August, there were some relatively small deviations from the regulation plan to offset the over-discharges during the first three months of this year, and to accommodate flow measurements in July.

On June 27, the Board held a public meeting in Port Severn, Ontario, which was well attended by the public.

Due to the under-reporting of diversions at the Edison Sault Electric plant, the Board applied correction factors to the current methods of flow computations at the Edison Sault Electric Company (ESEC) through August. Beginning in September, the Board provisionally lifted the requirements to apply the correction factors due to the improved flow measuring method installed at the ESEC plant. A correction factor continued to be applied at the U.S. Government hydroelectric generating facilities to adjust for the under-reporting of its diversions. The application of correction factors is an interim

measure until the causes of the under-reporting are identified and corrected.

In July, the U.S. Army Corps of Engineers and Environment Canada supported the Board in conducting flow measurements at the Compensating Works and the ESEC hydropower plant.

## **2. Monitoring of Hydrologic Conditions**

The Board, through its staff, continuously monitored the water levels of Lakes Superior and Michigan-Huron, and the water levels and flows in the St. Marys River. The Regulation Representatives' monthly reports to the Board provided a hydrologic assessment, as well as recommendations on the regulation of outflows from Lake Superior. These reports also indicated the amount of water available for hydropower purposes, after the requirements for domestic use, navigation, and the fishery (St. Marys Rapids) are met.

Tables 1 and 2 list the recent monthly water levels, net basin supplies, and outflows for Lakes Superior and Michigan-Huron, respectively. Figure 1 compares the monthly water levels for this period to long-term averages and extremes. Figure 2 shows the monthly precipitation over the Lake Superior and Lakes Michigan-Huron basins. Figure 3 shows the monthly net basin supplies for the basins.

On the Lake Superior basin, the precipitation amount in April was a new record maximum for the month of April. Precipitation amounts were slightly above average in May and August, and below average in March, June and July. The water supply to Lake Superior in April was a record high for any month, raising the level on the lake sharply. However, dry conditions subsequently returned and kept the lake level generally 20 cm (8 in) below average for the next four months. The lake level was below chart datum from about mid-October 2000 until early May this year. While the monthly mean water levels during the past six months were below average, they were at least 36 cm (14 in) above the record minimum, which occurred in April 1926. On September 20, Lake Superior was at elevation 183.38 m (601.64 ft) (IGLD 1985), 18 cm (7 in) below average and 15 cm (6 in) higher than one year ago.

Precipitation on the Lakes Michigan-Huron basin was above average in April, May, and August, and near average in June. March and July were dry, receiving less than one-half of their usual amounts. The net basin supplies during the past six months were much below average in March and July but near average in other months. The Lakes Michigan-Huron net total water supplies (which include the inflows from Lake Superior) were below average except in May, keeping the levels on these lakes generally 55 cm (22 in) below average over the past six months. However, the monthly mean levels of the past six months were 20 to 30 cm (8 to 12 in) higher than the record minimums which occurred in 1964. Water levels on these lakes were below chart datum from about mid-October 2000 to about the end of May this year. On September 20, Lakes Michigan-Huron were at elevation 176.01 m (577.46 ft), 53 cm (21 in) below the average and 8 cm (3 in) lower than one year ago.

### **3. Regulation of the Outflow from Lake Superior**

During the reporting period, the outflows of Lake Superior were as specified by Regulation Plan 1977-A with very minor deviations. For the three-month period January-March this year, the total outflow was about 102 m<sup>3</sup>/s-months (3,600 ft<sup>3</sup>/s-months) more than specified by the regulation plan due to inaccurate wicket gate settings at the U.S. Government plant, resulting in higher discharges than allocated. To offset these over-discharges, the Commission, on the recommendation of the Board, directed outflows less than specified by the regulation plan during the June-August period. The reductions in the outflow were reflected in the amount of water allocation for hydropower purposes for the U.S. These deviations had virtually no impact on the water levels of the upper lakes. The July flow compensation was not achieved as planned due to an over-discharge at ESEC. The September ESEC allocation was reduced by 34 m<sup>3</sup>/s (1,200 cfs) to achieve this compensation.

The gate setting at the Compensating Works supplying the main portion of the St. Marys Rapids was at an equivalent one-half of one gate open setting for most of the reporting period. During the period July 25-31, up to four gates were fully open to allow flow measurements at the structure. Gate 1, which supplies water to the Fishery Remedial Works, remained set at its normal value of 15 m<sup>3</sup>/s (530 cfs) throughout the past six months.

### **4. Governing Conditions During the Reporting Period**

The monthly mean levels of Lake Superior during the reporting period were within the limits of 182.76 and 183.86 m (599.6 and 603.2 feet) specified in the Commission's Orders of Approval.

During the reporting period, the daily mean water levels in the lower St. Marys River at the U.S. Slip Gauge downstream of the U.S. Locks, varied between elevations 176.02 m (577.49 ft) and 176.52 m (579.13 ft). The requirement for maintaining the river level at that location below 177.94 m (583.8 feet) was satisfied.

### **5. Repairs, Inspection and Flow Calibration at the Compensating Works**

No major repairs were required on the Compensating Works this year.

In May 2000, Great Lakes Power Company Limited and the U.S. Army Corps of Engineers conducted their 5-year inspections of the Canadian portion and U.S. portion of the Compensating Works. The results of the 5-year inspection showed that the structure was found to be in excellent working condition. The exception was some leakage at the gate seals of the U.S. gates. The repairs to the gate seals are scheduled for a period of about ten weeks in the spring of 2002. During the repairs, one gate will be raised to facilitate the repairs, thus resulting in flows for the main rapids more than that equivalent to one-half gate open. Preliminary analysis shows that there would be no, or at most very minor, impact

on Lake Superior regulation. The Board will advise the Commission on the need to deviate from the regulation plan if conditions warrant it.

As part of a program to update the ratings for the Compensating Works, the Corps of Engineers and Environment Canada carried out flow measurements during the period July 25-30. Logistical problems and miscommunications between the field crews and gate operators resulted in gate open settings during the flow measurements much different than the patterns required. Therefore, the data gathered during this effort was of no value. The Board intends to conduct flow measurements again next year at the Compensating Works.

The next 5-year inspection is scheduled for 2005.

## **6. Repairs, Maintenance and Flow Determination at the Hydropower Facilities**

Automation of the U.S. government hydropower plant continues. Completion is expected in mid-2002.

Great Lakes Power Company conducted repairs to its transformers at its plant in April and May. However, the short-term shutdowns did not result in any significant reduction in diversion capability.

The scour depression below the U.S. government plant spillway gates is under review and recommendations are being formulated.

The inaccuracy in determining the amount of water diverted for hydropower purposes was reported in the Board's previous progress report. Beginning in December 2000, the operators at the U.S. Government hydropower plant have applied a flow adjustment factor of 9% to determine more accurately the actual diversion by the plant. The adjustment factor, as directed by the Board, was derived from flow measurements in the power canal in 1998, 1999 and 2000. These flow measurements showed actual flows at the plant were about 9% greater than the amounts reported by the plant. This adjustment is considered a temporary measure. A Corps of Engineers study team was formed in December 2000 to examine and make recommendations to resolve the under-reporting of flows. The preliminary recommendation is to recalibrate each turbine unit after the automation program is complete.

The results of the 1998-2000 flow measurements also showed diversions at the ESEC plant have been greater than the values reported at the plant. To ensure accurate reporting of the diversions, from January to August this year the ESEC plant operators applied correction factors provided by the Board. The correction factors were developed using the results of the flow measurements conducted by the Corps of Engineers and Environment Canada in 2000. This summer, the company revised its flow calculation software. To verify the validity of these revisions, the Corps of Engineers and Environment

Canada conducted flow measurements at the power canal in July. These flow measurements showed no significant difference between the measured flows and reported flows using the new calculation software. As a result, the Board agreed that, beginning September, the application of flow correction factors was no longer required at the ESEC plant.

## **7. Water Usage in the St. Marys River**

Table 3 (Table 4 in U.S. Customary units) lists the distribution of outflows from Lake Superior for January-August 2001. Water uses are divided into four categories: domestic, navigation, fishery, and hydropower. According to the 1979 Supplementary Order, after the first three water requirements are satisfied, the remaining outflow from Lake Superior is shared equally between the U.S. and Canada for hydropower purposes. Any remaining flow allotment, beyond the discharge capacity of the hydropower plants, will normally be discharged through the Compensating Works and the St. Marys Rapids.

As shown in the tables, the amount of water used for domestic purposes was fairly constant and averaged about 4 m<sup>3</sup>/s (140 cfs) from January to August. The flow through the locks depended on traffic volume and varied from 2 to 17 m<sup>3</sup>/s (70 to 620 cfs).

In accordance with the orders of the Commission, to fulfill the fishery needs in the main Rapids, a minimum Compensating Works gate setting of 1/2 gate open, or its equivalent, is required at all times. In addition, a flow of at least 15 m<sup>3</sup>/s (530 cfs) in the fishery remedial works (through Gate 1) must be maintained. As discussed earlier, the gate open setting for the main portion of the Rapids as well as for the fishery remedial works met requirements during the reporting period.

As previously reported, the Canadian navigation lock was returned to service in July 1998 following two years of extensive modifications. The refurbished lock is now smaller in size and serves pleasure craft and tour boats. Over the past two years, the Canadian Department of Heritage, which owns the lock, had been examining the feasibility of installing and operating eight low-head hydropower units at the site. The study is currently on hold and there are no indications that it will be re-activated in the near future.

## **8. Long Lac and Ogoki Diversions**

Ontario Power Generation continued to provide the Board with information on the operations of the Long Lac and Ogoki Diversions. The Ogoki Diversion into Lake Nipigon (which flows into Lake Superior) averaged 159 m<sup>3</sup>/s (5,620 cfs) from March through August 2001. The Long Lac Diversion averaged 37.6 m<sup>3</sup>/s (1,330 cfs) for the same period. Combined, these diversions were about 118 percent of average for the period 1944-1999.



At the Long Lac diversion project, beginning in May 1999 a continuous flow of at least 2 m<sup>3</sup>/s (70 cfs) is to be maintained in the summer period (mid- May through about Labour Day) from the north outlet of Long Lac. This agreement between Ontario Power Generation and the local First Nations provides “environmental enhancement” water to the Kenogami River, and reduces the amount diverted to Lake Superior.

## **9. Vidal Shoals Dredging**

In the previous progress report, the Board reported that the Corps of Engineers planned to carry out dredging of the Vidal Shoals in the St. Marys River in the Spring of 2001. The dredging began in June this year following approval from the U.S. State Department which had consulted with Canada’s Department of Foreign Affairs and International Trade. A hydraulic analysis showed that this dredging project will have no measurable impacts on water levels, including transboundary water level impacts. There is a “differing site conditions” claim pending on the U.S. portion of the Vidal Shoals reach. The contractor is claiming that the bottom material is not as expected and will require different equipment and more time to accomplish the work in this area. About 230 cubic metres (300 cubic yards) of dredging is in Canadian waters, which is being carried out using the Corps of Engineers Soo Area Office personnel and equipment. This work is about 40 % complete.

## **10. Annual Meeting with the Public and Public Information**

The Board held its annual meeting with the public on June 27 in Port Severn, Ontario. About 25 members of the public attended. In addition to issues related to Lake Superior outflow regulation, concerns and views expressed by those attending included the low water level conditions and their impacts on Georgian Bay ecology, recreational boating and commercial shipping.

Prior to the public meeting, the Board accompanied Commissioner Robert Gourd on a boat tour of the Honey Harbour area to have a first hand look at the low water level conditions on Georgian Bay.

The Board continues to issue, at the beginning of each month, news releases informing the public about Lake Superior regulation and water level conditions. Announcements of the gate operations at the Compensating Works were made to caution visitors and anglers about water level and flow changes in the St. Marys Rapids during the inspection and flow measurements at the Compensating Works.

In support of the Board and the Commission, the Detroit District of the Corps of Engineers maintains a Board Internet home page. It includes information on the Board and its activities, news releases and updates on Great Lakes basin conditions.

Flow variations from day to day and within-the-day at the hydropower plants at Sault Ste. Marie cause the water levels to fluctuate in the St. Marys River downstream of the plants. With the water levels and

Lake Superior outflows below average, the fluctuations have become a subject of concern for the commercial navigation users. To provide timely information to the users, the Detroit District of the U.S. Army Corps of Engineers has begun distributing monthly notices on expected Lake Superior outflows, and schedule of flow variations at the hydropower plants. The notices also contain instructions for mariners on who to contact to obtain additional information related to water levels and flows. In addition, a meeting took place on August 28 in Sault Ste. Marie, Michigan, attended by the Board's Regulation Representatives, the Corps of Engineers and representatives of the shipping and hydropower interests. The discussion centered on efforts to further improve communication between the hydropower and shipping entities, and the Board.

## **11. Plan of Study for Review of Regulation Criteria**

By letter dated August 14, the Commission set up the Upper Great Lakes Plan of Study team. The Canadian Secretary and the U. S. Regulation Representative of the Lake Superior Board were appointed team members of the six-member team. The team is currently preparing a detailed plan of study including cost estimates and a schedule. The Lake Superior Board is prepared to provide any information that the team might need to help complete its work.

## **12. Board Membership and Meetings**

BG Steven R. Hawkins was appointed U.S. Member of the Board effective July 24, 2001. General Hawkins succeeded BG Robert Griffin, who took on another posting, with the U.S. Army Corps of Engineers in Washington, D.C.

The Board held a teleconference on September 20 with both members and the U.S. alternate member (Colonel Mark Roncoli) in attendance.

Respectfully submitted,

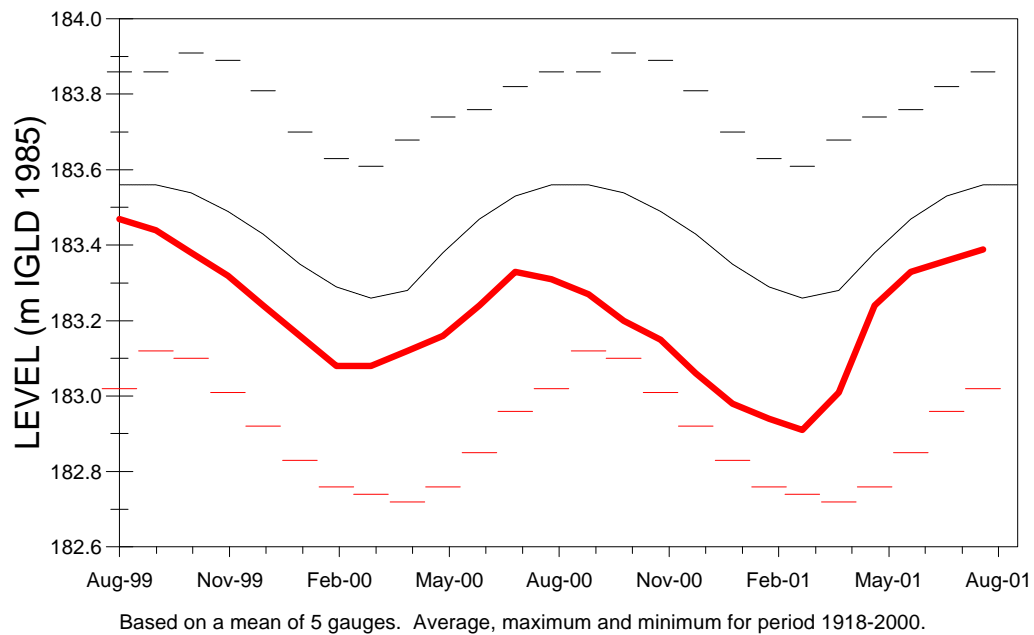
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BG Steven R. Hawkins  
Member for United States

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Doug Cuthbert  
Member for Canada

## LAKE SUPERIOR MONTHLY WATER LEVELS



## LAKES MICHIGAN-HURON MONTHLY LEVELS

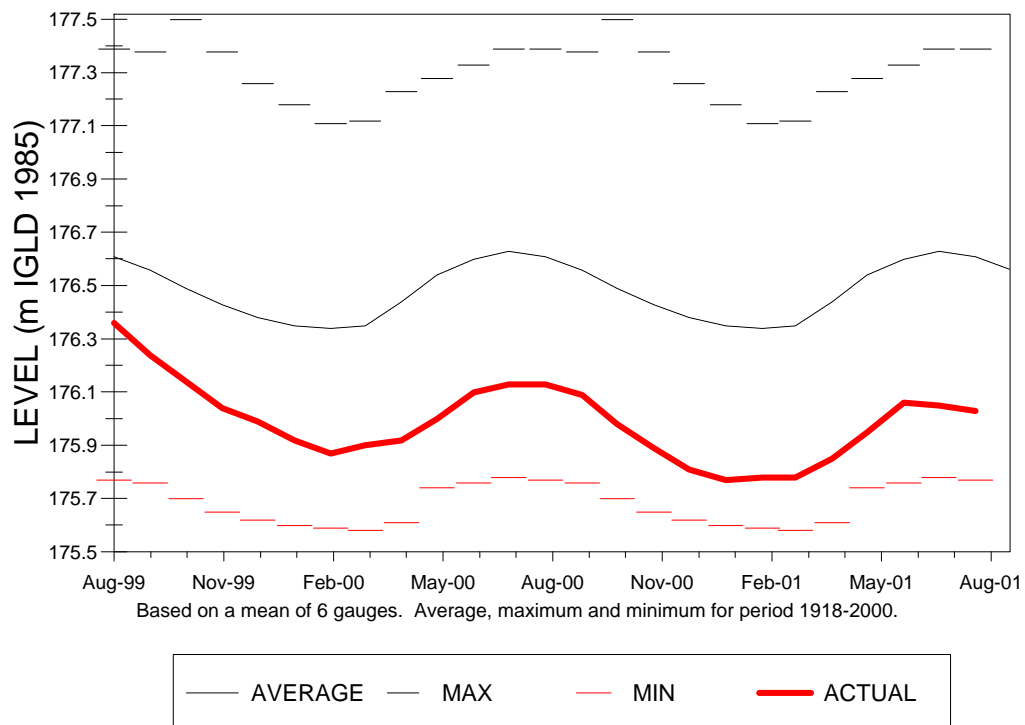
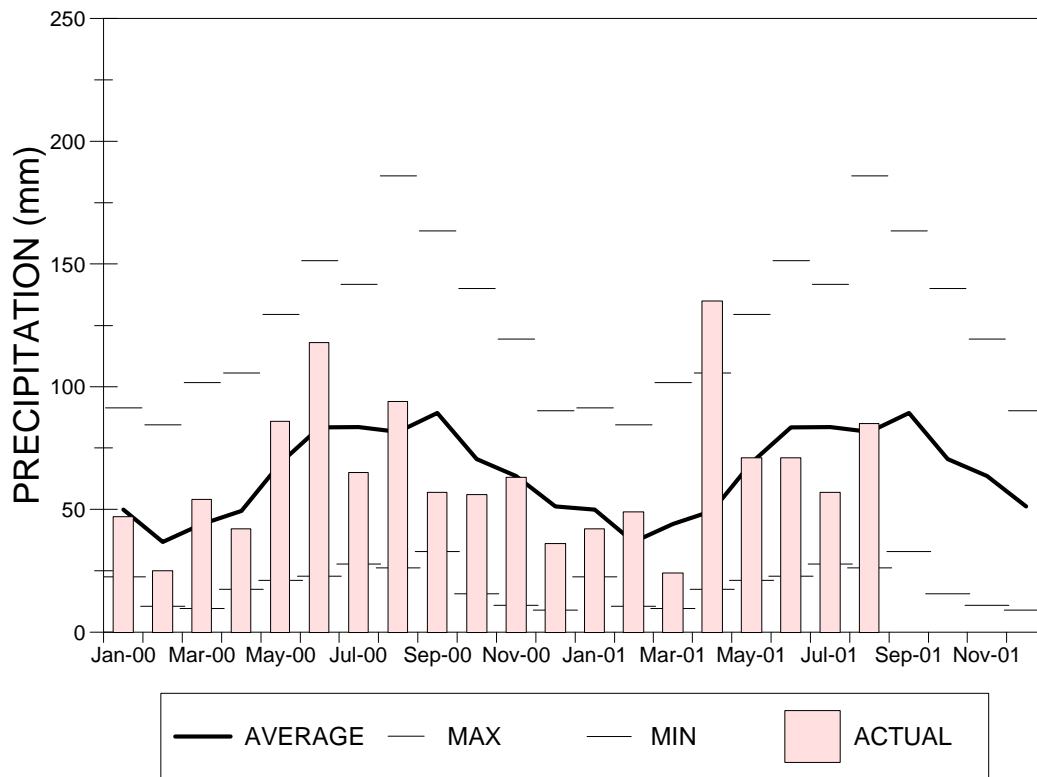
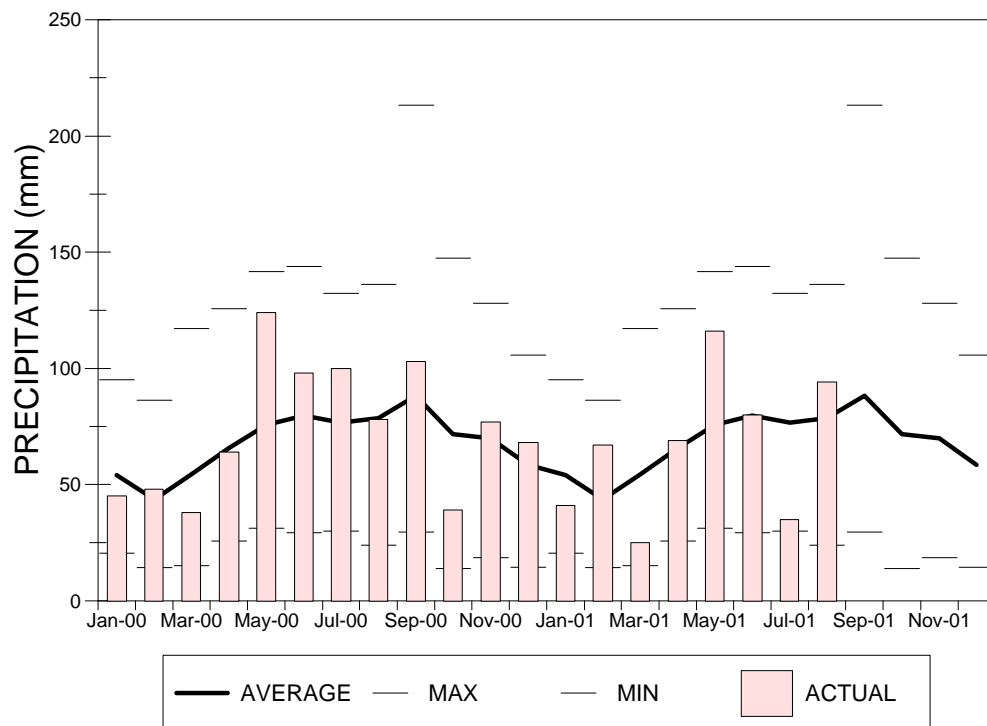


Figure 1

## LAKE SUPERIOR MONTHLY PRECIPITATION



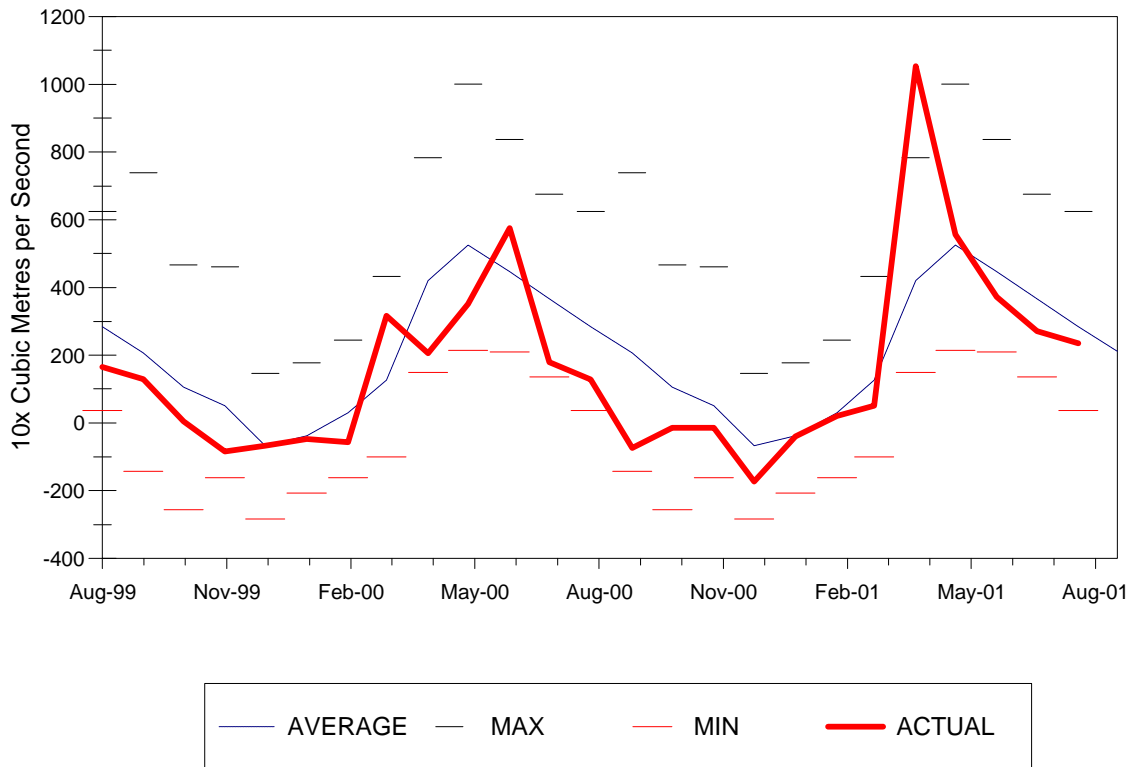
## LAKES MICHIGAN-HURON PRECIPITATION



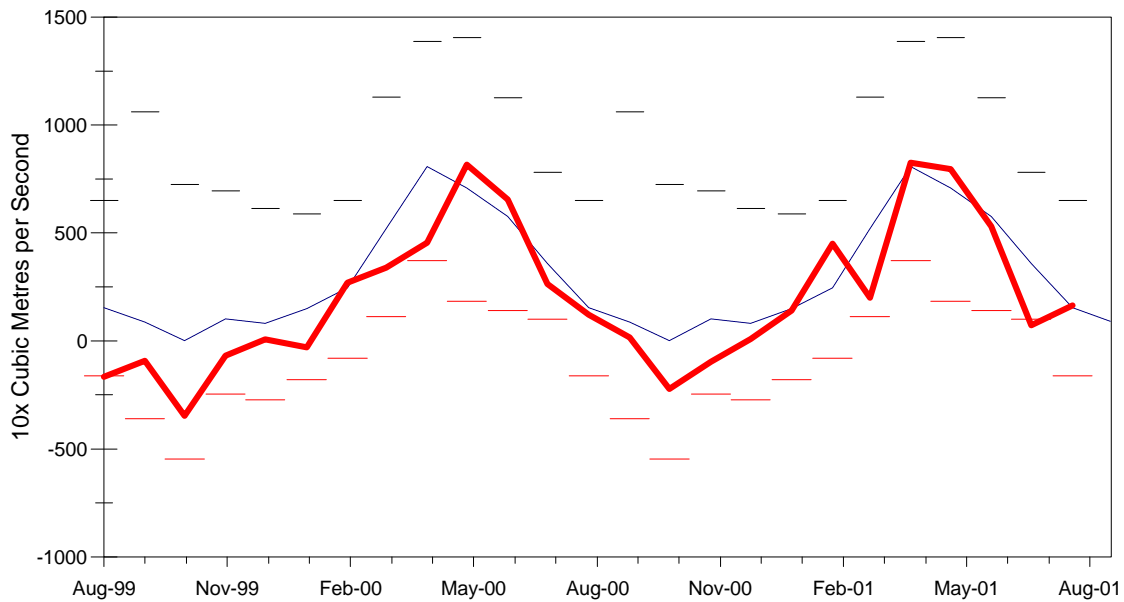
Average, maximum and minimum values based on period of record 1900-2000.

Figure 2

### LAKE SUPERIOR MONTHLY NET BASIN SUPPLIES



### LAKES MICHIGAN-HURON MONTHLY NET BASIN SUPPLIES



Average, maximum and minimum values based on coordinated period of record 1900-1989.

Figure 3

TABLE 1. 2000-2001 Lake Superior Hydrologic Factors

Month	Levels				Net Basin Supplies			Outflows		
	Monthly Mean		Difference		Monthly Mean		Exceedence Probability (%)	Monthly Mean		Percent of Average <sup>3</sup>
	Recorded <sup>1</sup> metres	feet	From Average <sup>2</sup> metres	feet	Recorded m <sup>3</sup> /s	tcfs		Recorded m <sup>3</sup> /s	tcfs	
Apr-00	183.12	600.79	-0.16	-0.52	2060	73	94	1850	65	95
May-00	183.16	600.92	-0.22	-0.72	3520	124	84	1860	66	88
Jun-00	183.24	601.18	-0.23	-0.75	5750	203	20	1720	61	78
Jul-00	183.33	601.48	-0.20	-0.66	1800	64	96	2070	73	90
Aug-00	183.31	601.41	-0.25	-0.82	1290	46	91	2170	77	91
Sep-00	183.27	601.28	-0.29	-0.95	-730	-26	98	1920	68	81
Oct-00	183.20	601.05	-0.34	-1.12	-140	-5	82	1560	55	68
Nov-00	183.15	600.89	-0.34	-1.12	-140	-5	68	1560	55	69
Dec-00	183.06	600.59	-0.37	-1.21	-1720	-61	90	1570	55	76
Jan-01	182.98	600.33	-0.37	-1.21	-390	-14	49	1600	57	82
Feb-01	182.94	600.20	-0.35	-1.15	210	7	52	1570	55	83
Mar-01	182.91	600.10	-0.35	-1.15	510	18	72	1540	54	82
Apr-01	183.01	600.43	-0.27	-0.89	10540	372	<1*	1530	54	78
May-01	183.24	601.18	-0.14	-0.46	5570	197	42	1980	70	93
Jun-01	183.33	601.48	-0.14	-0.46	3730	132	66	2110	75	96
Jul-01	183.36	601.57	-0.17	-0.56	2710	96	79	2280	81	100
Aug-01	183.39	601.67	-0.17	-0.56	2360	83	64	2220	78	93

Notes: m<sup>3</sup>/s = cubic metres per second      tcfs = 1000 cubic feet per second

1 Water Levels are a mean of five gauges on Lake Superior, IGLD 1985

2 Average levels are for period 1918-2000, based on a mean of five gauges. Differences computed as metres and then converted to feet.

3 Average flows are for the period 1900-1989.

\* New record net basin supply for any month.

TABLE 2. 2000-2001 Lakes Michigan-Huron Hydrologic Factors

Month	Levels				Net Basin Supplies			Outflows		
	Monthly Mean Recorded <sup>1</sup>		Difference From Average <sup>2</sup>		Monthly Mean Recorded		Exceedence Probability (%)	Monthly Mean Recorded		Percent of Average <sup>3</sup>
	metres	feet	metres	feet	m3/s	tcfs		m3/s	tcfs	
Apr-00	175.92	577.17	-0.52	-1.71	4560	161	94	4530	160	88
May-00	176.00	577.43	-0.54	-1.77	8170	289	29	4580	162	85
Jun-00	176.10	577.76	-0.50	-1.64	6560	232	30	4620	163	85
Jul-00	176.13	577.85	-0.50	-1.64	2650	94	72	4630	164	84
Aug-00	176.13	577.85	-0.48	-1.57	1230	43	56	4650	164	84
Sep-00	176.09	577.72	-0.47	-1.54	180	6	61	4690	166	85
Oct-00	175.98	577.36	-0.51	-1.67	-2210	-78	90	4620	163	85
Nov-00	175.89	577.07	-0.54	-1.77	-960	-34	85	4530	160	84
Dec-00	175.81	576.80	-0.57	-1.87	100	4	62	4260	150	82
Jan-01	175.77	576.67	-0.58	-1.90	1430	50	48	3830	135	85
Feb-01	175.78	576.71	-0.56	-1.84	4520	160	8	4210	149	97
Mar-01	175.78	576.71	-0.57	-1.87	2010	71	93	4350	154	90
Apr-01	175.85	576.94	-0.59	-1.94	8260	292	45	4340	153	84
May-01	175.95	577.26	-0.59	-1.94	7970	281	32	4500	159	84
Jun-01	176.06	577.62	-0.54	-1.77	5300	187	58	4640	164	85
Jul-01	176.05	577.59	-0.58	-1.90	750	26	99	4730	167	86
Aug-01	176.03	577.53	-0.58	-1.90	1660	59	46	4680	165	85

Notes: m3/s = cubic metres per second tcfs = 1000 cubic feet per second

1 Water Levels are a mean of six gauges on Lakes Michigan-Huron, IGLD 1985

2 Average levels are for period 1918-2000, based on a mean of six gauges. Differences computed as metres and then converted to feet.

3 Average flows are for the period 1900-1989.

**TABLE 3**

**INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL**

**MONTHLY DISTRIBUTION OF LAKE SUPERIOR OUTFLOW**

OUTFLOW IN m <sup>3</sup> /s THROUGH														
POWER CANALS				NAVIGATION CANALS				DOMESTIC USAGE				FISHERY TOTAL		
YEAR	US	EDISON	US	GREAT	TOTAL	UNITED	CANADA	TOTAL	S.STE	ALGOMA	ST MARYS	TOTAL	STE.	LAKE
AND	GOVT	SAULT	TOTAL	LAGES	POWER	STATES		NAV.	MARIE	STEEL	PAPER	DOM.	MARY'S	SUPERIOR
MONTH	HYDRO	EL. CO		POWER	CANALS			CANALS	US+CAN			USAGE	RAPIDS	OUTFLOW
														m <sup>3</sup> /s
2000														
JAN	351	550	901	888	1789	3.9	0.0	4	0.3	3.6	0.3	4	96	1893
FEB	367	478	845	833	1678	1.4	0.0	1	0.3	3.7	0.3	4	94	1777
MAR	358	442	800	814	1614	3.4	0.0	3	0.3	3.8	0.3	4	95	1716
APR	369	506	875	859	1734	11.5	0.0	12	0.3	3.6	0.3	4	96	1846
MAY	371	509	880	868	1748	13.2	0.8	14	0.3	3.7	0.3	4	96	1862
JUN	370	446	816	786	1602	14.2	2.1	16	0.3	3.6	0.3	4	97	1719
JUL	371	693	1064	885	1949	16.1	2.7	19	0.4	3.7	0.3	4	99	2071
AUG	368	663	1031	968	1999	15.8	2.4	18	0.4	3.7	0.3	4	150	2171
SEP	365	540	905	901	1806	15.2	1.8	17	0.4	3.4	0.3	4	98	1925
OCT	361	330	691	754	1445	12.5	0.7	13	0.3	3.3	0.3	4	97	1559
NOV	361	364	725	726	1451	12.3	0.0	12	0.3	3.3	0.3	4	96	1563
DEC	386	350	736	728	1464	10.4	0.0	10	0.3	3.3	0.3	4	95	1573
2001														
JAN	368	399	767	730	1497	3.3	0.0	3	0.3	3.4	0.3	4	93	1597
FEB	336	416	752	718	1470	2.1	0.0	2	0.3	3.1	0.3	4	93	1569
MAR	335	401	736	700	1436	3.3	0.3	4	0.3	3.3	0.3	4	92	1536
APR	396	420	816	606	1422	11.3	2.0	13	0.4	3.4	0.3	4	94	1533
MAY	403	482	885	978	1863	12.9	0.7	14	0.3	3.3	0.3	4	97	1978
JUN	386	654	1040	954	1994	14.0	2.1	16	0.4	3.3	0.3	4	98	2112
JUL	401	660	1061	1044	2105	14.8	2.6	17	0.3	3.4	0.3	4	155	2281
* AUG	395	638	1033	1061	2094	14.0	2.6	17	0.3	3.4	0.3	4	104	2219

\* Preliminary

NOTE: POWER CANALS COLUMNS INCLUDE FLOWS THROUGH POWER PLANTS AND SPILLWAYS



**TABLE 4**

**INTERNATIONAL LAKE SUPERIOR BOARD OF CONTROL**

**MONTHLY DISTRIBUTION OF LAKE SUPERIOR OUTFLOW**

OUTFLOW IN CFS THROUGH														
POWER CANALS					NAVIGATION CANALS				DOMESTIC USAGE				FISHERY TOTAL LAKE	
YEAR AND MONTH	US GOVT HYDRO	EDISON SAULT EL. CO	US TOTAL	GREAT LAKES POWER	TOTAL POWER CANALS	US STATES	CANADA	TOTAL NAV. CANALS	S.STE MARIE US+CAN	ALGOMA STEEL	ST MARYS PAPER	TOTAL DOM. USAGE	STE. MARY'S RAPIDS	SUPERIOR OUTFLOW CFS
2000														
JAN	12400	19400	31800	31400	63200	138	0	138	11	127	11	149	3390	66900
FEB	13000	16900	29900	29400	59300	49	0	49	11	131	11	153	3320	62800
MAR	12600	15600	28200	28700	56900	120	0	120	11	134	11	156	3350	60500
APR	13000	17900	30900	30300	61200	406	0	406	11	127	11	149	3390	65100
MAY	13100	18000	31100	30700	61800	466	28	494	11	131	11	153	3390	65800
JUN	13100	15800	28900	27800	56700	501	74	575	11	127	11	149	3430	60900
JUL	13100	24500	37600	31300	68900	569	95	664	14	131	11	156	3500	73200
AUG	13000	23400	36400	34200	70600	558	85	643	14	131	11	156	5300	76700
SEP	12900	19100	32000	31800	63800	537	64	601	14	120	11	145	3460	68000
OCT	12700	11700	24400	26600	51000	441	25	466	11	117	11	139	3430	55000
NOV	12700	12900	25600	25600	51200	434	0	434	11	117	11	139	3390	55200
DEC	13600	12400	26000	25700	51700	367	0	367	11	117	11	139	3350	55600
2001														
JAN	13000	14100	27100	25800	52900	117	0	117	11	120	11	142	3280	56400
FEB	11900	14700	26600	25400	52000	74	0	74	11	109	11	131	3280	55500
MAR	11800	14200	26000	24700	50700	117	11	128	11	117	11	139	3250	54200
APR	14000	14800	28800	21400	50200	399	71	470	14	120	11	145	3320	54100
MAY	14200	17000	31200	34500	65700	456	25	481	11	117	11	139	3430	69800
JUN	13600	23100	36700	33700	70400	494	74	568	14	117	11	142	3460	74600
JUL	14200	23300	37500	36900	74400	523	92	615	11	120	11	142	5470	80600
* AUG	13900	22500	36400	37500	73900	494	92	586	11	120	11	142	3670	78300

\* Preliminary

NOTE: POWER CANALS COLUMNS INCLUDE FLOWS THROUGH POWER PLANTS AND SPILLWAYS

NOTE: Flows for individual users were originally coordinated in m³/s, and are converted here to U.S. customary units (cfs) and rounded to 3 significant figures. Total flow for each category and total Lake Superior flow in this table are computed from the individual flows in cfs.